A Qualitative Description of the Development and Evaluation of *Our Voice*, a Health Promotion Magazine Created by Pediatric Patients for Hospitalized Pediatric Patients

**abstract**

**OBJECTIVES:** To facilitate a peer-developed health promotion magazine that provides health education and engages hospitalized pediatric patients during a hospital admission. To evaluate patient satisfaction with the content and layout of the magazine and its impact on patients’ attitudes toward healthy living.

**METHODS:** A pediatric resident–led multidisciplinary team collaborated with the Children’s Council at The Hospital for Sick Children to create a health promotion magazine for inpatients. Articles included a scavenger hunt, healthy recipes, physical activities, hospital staff interviews, and patient stories. Patients 7 to 18 years of age admitted to Pediatric Medicine or Respirology were invited to read the magazine and complete a questionnaire 24 hours later on their satisfaction with the magazine and their attitudes regarding healthy living.

**RESULTS:** Thirty-seven patients received a copy of the magazine, and 24 patients completed the questionnaire (mean 13.4 years, 54% female, 25% overweight/obese). Eleven of 24 (46%) read the entire magazine, and 19 of 23 (83%) reported learning. The exercises, recipes, and patient stories were most liked. Ten of 24 (42%) participants performed the exercises; the most common reason for not trying an exercise was pain. After reading the magazine, 15 of 24 (65%) patients reported that they will try to be more active, and 11 of 23 (48%) reported that they will try to eat more fruits and vegetables. Eighty-three percent were interested in a future edition.

**CONCLUSIONS:** A health promotion magazine created by patients for patients changed patient-reported attitudes about healthy living. Peer-led interventions in the inpatient setting may be an important opportunity to promote healthy lifestyles and require further study.
The concept of health promotion in hospitalized children and youth has been further developed by the Task Force on Health Promotion for Children and Adolescents by Hospitals, first established in April 2004. Their mandate is to apply the principles of health promotion in hospitals to the pediatric population with the aim of enabling children and adolescents to “increase control over their health and to realize their full potential for health and development.” The goal of this task force is to transform a hospital admission from what could be a traumatic health care experience to an opportunity for providing knowledge on health promotion and empowering youth.

A recent review of the health promotion needs of children and adolescents in hospitals elaborated on the role of hospitals in providing general health education for youth with chronic illnesses during their hospitalization. A visit to the hospital can be “a unique opportunity for general health education” for several reasons; the patient population is easily accessible, patients are sensitized to health matters during an admission, and health care professionals who provide the health education have credibility with their patients. The authors suggested a need for health education interventions for physical activity, nutrition and healthy weight, relaxation, and sleep.

Members of the pediatric resident advocacy group at The Hospital for Sick Children (SickKids) in Toronto, Canada, previously developed and evaluated a health promotion magazine in collaboration with an elementary school leadership group for their peers. After the success of this project, and to advance work in health promotion interventions for hospitalized children, the advocacy group developed a partnership with the Children’s Council at SickKids to create a patient-developed pediatric health promotion magazine for hospitalized patients. The Children’s Council was created in 2000 with the aim to further involve children in their health care experience; it consists of 12 nominated pediatric patients, ages 9 to 18 years, who meet monthly throughout the year. Their mandate is to be advisors, advocates, innovators, and leaders on behalf of patients in the hospital. The creation of a health magazine was much aligned with their mandate, because it was a new initiative for the hospital and was a unique and innovative opportunity to interact with hospitalized patients. The primary objective of this project was to facilitate a peer-developed health promotion magazine designed for hospitalized children, with the aim of providing health education and engaging patients during a hospital admission. The second objective was to evaluate patient satisfaction with the content and layout of the magazine and its impact on patients’ attitudes toward healthy living. We hypothesized that pediatric hospitalized patients would be satisfied with a patient-developed health promotion magazine and that patients would report that they will try to engage in exercise and healthy eating after reading the magazine.

**METHODS**

**Creation of Our Voice Health Magazine**

Pediatric residents, staff pediatricians, dietitians, physiotherapists, and child life specialists at SickKids in Toronto worked closely with members of the hospital’s Children’s Council to create the health magazine. The magazine was created during a designated time at the council’s monthly meetings during the period from November 2009 to June 2011. The decision to focus the magazine on healthy eating and physical activity was based on several factors. First, it was guided by informal interactions between the staff pediatricians, pediatric residents, and child life specialists with council members. Health topics of interest were also gleaned from surveys completed by a small group of pediatric patients at SickKids (ages 9–17, 5 girls, 3 boys). The predominant response was that healthy eating, exercise, and fitness were topics they wished to learn and write about. Last, the authors wanted to respond to the growing rate of childhood obesity in the pediatric population by providing information about healthy lifestyle behaviors to children and youth during a time in which health care providers have significant interaction with them, that is, during an admission to hospital.

The council members developed 5 articles related to healthy eating and physical activity they felt were relevant for readers during their hospital admission. The articles were designed to be interactive and fun, taking into account the children’s physical environment at SickKids. The articles were also meant to have broad appeal to children and adolescents admitted with a variety of admission conditions. The 5 articles included a scavenger hunt around the hospital to promote physical activity; healthy recipes made from the hospital’s catering system (MealTrain) menu; physical activities that can be performed in a hospital room; interviews with SickKids’ staff on ideas around a healthy lifestyle (a social worker, a dietitian, and a child
life specialist); and empowering stories from members of the Children’s Council (Fig 1). The council members worked in small groups that included residents and staff members to assist in the writing and editing of the articles. To create the scavenger hunt, the council members walked around the hospital to identify important landmarks. To create the recipes, the dietitians provided items from the hospital’s MealTrain system, and the council members prepared and taste-tested the 3 healthy recipes. The physiotherapists helped the members to design and test the exercises. The members conducted the interviews with SickKids’ staff by e-mail. Two graphic artists volunteered to design the magazine based on the council members’ vision and ideas. They attended several of the council meetings. The final magazine was reviewed and edited by this large group of patients and health care providers.

Evaluation of Our Voice Health Magazine

This was a prospective evaluation of the health magazine for children 7 to 18 years of age admitted to the Pediatric Medicine or Respiratory ward from July to August 2011. Children were included if the nurse in charge of the ward reported they could understand the content of the magazine and could read or were accompanied by a caregiver who could read to them. Children were excluded if they were medically unstable as defined by the responsible physician or delegate, health care staff required an N95 mask for entry into the room, or they had a planned discharge within 24 hours. After a project assistant received consent, a copy of the magazine was left for the patient, and the project assistant returned after 24 to 48 hours to deliver and then collect a questionnaire. The questionnaire was developed by the authors to evaluate patient satisfaction with the content and layout of the magazine and the impact on patients’ attitudes toward healthy living. The council members

reviewed the questionnaire for clarity and wording.

Analysis
Demographic information including date of birth, gender, height and weight, reason for admission, limitations in physical activity, and isolation status were collected.

Descriptive statistics were used to describe the baseline characteristics of the subjects, as well as the results from the questionnaire.

Ethics
The project was approved by the Research Ethics Board and by Quality & Risk Management at SickKids. The council members signed consent to have their names and pictures printed in press before joining the Children’s Council.

RESULTS
Thirty-eight patients were approached, and 37 patients consented to participate in the study (1 patient declined). Twenty-four patients completed the questionnaire (65% completion rate) an average of 1.3 days after reading the magazine (range, 1–5 days). Reasons for not completing the questionnaire included unexpected discharges or transfers, and 1 patient did not have reading glasses available. Table 1 describes the characteristics of the study subjects. Eleven patients were male (46%), and the mean age was 13.4 years. Six of 24 patients (25%) were overweight or obese, defined as a BMI >85th percentile by using the World Health Organization growth chart. The most common reason for admission to the hospital was a respiratory cause (7 patients, including 5 patients with cystic fibrosis), infection (4 patients), gastrointestinal condition (3 patients), and sickle cell disease (2 patients).

After receiving the magazine, 11 of 24 patients (46%) reported they “read the entire magazine”, and 7 (29%) reported they “read most of the magazine.” Seven of 23 patients (30%) reported they learned “a lot” after reading the magazine, and 12 (52%) reported they learned “a little.” The topics most enjoyed by patients were the recipes, the exercises, and the empowering stories. The children recommended reducing the amount of text and detail in the magazine.

After reading the magazine, 15 of 23 (65%) reported they would definitely try to be more physically active, and 11 of 23 patients (48%) reported they would definitely try to eat more fruits and vegetables (Fig 2).

Fourteen of 24 patients (58%) did not try any of the exercises in the magazine. Of the 10 patients who did try the exercises, the most frequently tried exercise was the “leg” exercises (wall squats, leg cycling, and dancing) followed by yoga. Patients reported pain, fatigue/weakness, lack of interest, and inability to leave the bed as reasons for not trying the exercises. None of the patients attempted the recipes in the magazine.

Twenty of 24 patients (83%) were interested in reading the magazine in the future. Fifty percent preferred to receive a paper copy, and

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<th>TABLE 1 Characteristics of Study Participants</th>
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<td>Gender, n (%)</td>
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<td>BMI, mean ± SD</td>
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<td>BMI percentile range</td>
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<td>BMI z score, mean ± SD</td>
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<td>Reported able to ambulate, n (%)</td>
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<td>Isolation, n (%)</td>
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<td>Caregiver present, n (%)</td>
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FIGURE 2 Patients’ attitudes toward healthy lifestyle behaviors after receiving the magazine.
23% preferred an on-line version. Suggested topics for future editions included adding, in order of frequency, more sports-related information; puzzles and crosswords; tips on healthy lifestyle, stress relief, recipes, and healthy eating, in addition to articles on sports, activities, puzzles, and crosswords. It was initially surprising that only 42% of patients tried the exercises and none of the patients attempted the recipes. We hypothesize that this was due to the severity of illness in the patients in the study. As a measure of the magazine’s impact, we asked patients about changing their lifestyle behavior after reading the articles. The majority of patients reported they will try to eat more fruits and vegetables and will try to be more physically active after reading the magazine.

The positive reception of pediatric patients to health promotion in our study is similar to findings in adult hospitalized patients. In 1 study, 92.5% of patients agreed with the principle that hospitals should take a role in promoting health in addition to being a center for the treatment of disease. In addition, most patients wanted to modify some aspect of their lifestyle behavior, including alcohol consumption, smoking, exercise level, and weight. Similarly, a questionnaire administered to recently discharged adult hospitalized and day-case patients showed that the majority of the 179 respondents (87%) agreed that a “hospital is a good place for patients to receive health education.” With respect to health topics, the majority of participants “strongly agreed” or “agreed” that all adult hospitalized patients should be asked about their smoking, alcohol use, diet, and exercise. The mode of delivery of health promotion has also been studied. In the acute hospital setting, McBride found that of the patients who reported receiving leaflets, nearly all of them read the entire or most of the leaflet, and most patients (>89%) found the leaflets “very useful” or “quite useful.”

Furthermore, studies have demonstrated that health promotion integrated into the hospital pathway can improve clinical outcomes in adults. Examples include smoking and alcohol cessation interventions preoperatively and supervised exercise training programs for patients with chronic heart failure. Data on outcomes after hospital health promotion in hospitalized children and adolescents, however, are lacking. Our group previously developed, implemented, and evaluated the impact of a child-driven health magazine on the health knowledge and behavior of students at an urban, multicultural, low-income elementary school.

A limitation of our study is the small number of patients surveyed. Our outcomes are based on patients’ responses and did not include an objective measure of behavior change. In addition, we were not able to monitor behavior change over time. Future directions for our quality improvement project are incorporating the recommendations made by the patients into the magazine by adding sports articles, puzzles, and crosswords.

Creating a health promotion magazine with pediatric patients was an overwhelmingly positive experience that provided the authors and

### TABLE 2 Emerging Themes on Patients’ Ideas on the Importance of Our Voice Magazine

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<tr>
<th>The importance of healthy lifestyles and a positive attitude</th>
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<tr>
<td>“It is important to get plenty of exercise and eat healthy foods.”</td>
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<tr>
<td>“That staying positive is key to recovery.”</td>
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<td>“How to stay active in the hospital.”</td>
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<td>“Really great, something different to do, good distraction.”</td>
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<th>Relating to other children with illness</th>
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<td>“There’s other children that feel the same way you do. And, there are a variety of ways to stay healthy and break your usual cycle.”</td>
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<td>“… It was fun to be able to read and relate to other kids’ stories. From here I felt like I am not the only one.”</td>
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collaborators with insight into the hospital experience from the perspective of pediatric patients. Lessons learned from this process are severalfold. The length of time required to create and print the magazine was longer than expected, in part due to the spacing of the council meetings. Sustainability and feasibility of the project is an important issue to consider. To address this we plan to add 2 new pages biannually to the existing magazine rather than develop a new magazine, and we will aim to distribute this magazine on a continual basis.

CONCLUSIONS
An admission to hospital can be a unique opportunity for health promotion and health education for children and adolescents. Receiving and reading Our Voice, a health promotion magazine created by patients for patients, was a positive experience for the majority of patients. Patients reported participating in some magazine activities and reported changing their attitudes about healthy living. Our next steps include measuring behavior change in children receiving the magazine by using a clinical trial design and formally evaluating engagement of the children and staff who developed the magazine. Peer-led interventions in the inpatient setting may be an important opportunity to promote healthy lifestyles.

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REFERENCES